The Heart of Matter:
The mediation of science in the art of Catherine Richards

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The almost fashionable success of anatomy cannot be attributed solely to scientific curiosity. It is not hard to understand; it corresponds to certain ill-defined things at the outer limits of life and death, sexuality and pain.

Philipe Ariès, *The Hour of our Death*[1]

The body is an extraordinarily complex system that creates language from information and noise, with as many mediations as there are integrating levels, with as many changes in sign for the function which just occupied our attention. I know who the final observor is, the receiver at the chain's end: precisely he who utters language. But I do not know who the initial dispatcher is at the other end. ... The observor as object, the subject as the observed, are affected by a division more stable and more potent than their antique separation: they are both order and disorder. From this moment on, I do not need to know who or what the first dispatcher is: whatever it is, it is an island in an ocean of noise, just like me, no matter where I am.

Michael Serres, "The Origin of Language"[2]

When I was a small child my grandfather, a retired physics professor who had studied electromagnetic fields and thermodynamics, used to gather his grandchildren together in his cottage teahouse for impromptu science lessons. He was a tiny man, unassuming and overshadowed by my much more voluminous and voluble grandmother. In the early August mornings, the ground heavy with dew, he would become animated and expansive, chalk in hand, as he drew for us the workings of the internal combustion engine on a makeshift blackboard. I don't remember much from these lectures, except a vague image of complicated diagrams; I do remember that I was barely interested in the subject at hand and kept looking through the screened gazebo at the lake I loved to swim in, my body enveloped by dark blue waters that became a terrifying black as I dove downwards towards the untouchable bottom.

In the afternoon, my grandmother would hold court in the main cottage, heated by a propane stove even on the hottest days of summer, where she lectured us sternly about the greatness of literature and handed us books off the shelf to read - Charles Dickens, Jane Austen, Robbie Burns. I absorbed even less of these lessons than the workings of the internal combustion engine, distracted by the seemingly endless science experiments of my grandfather that cluttered every surface of the living room: odd bits of wood and wires and elastic bands and vacuum-sealed jars that made sparks fire and alternating currents ring tiny bells.

The ritual of the summer cottage sojourn continued into my teenage years, long after my grandparents died. The chair by the stove where my grandmother held forth was now occupied by my mother; my grandfather's experiments were piled into boxes and stored in the attic with the board games and dress-up clothes. My father, who like my grandfather was quiet and introspective, was recovering from an aneurysm in the brain at the time. In the late afternoons he would wander the woods, returning in a philosophical mood to share his thoughts with his children. One hazy August afternoon, he confided to me his thoughts about the brain that had so betrayed him. He told me that despite modern medicine, the brain was still a mystery. Scientists knew very little about how it functioned, yet it controlled and animated our body. He was sure that in twenty years - too late for his lifetime - science would begin to understand the internal workings of the brain, bringing cures to an unimaginable range of ailments.

Twenty years later, my stepson is now the age I was when my father and I had that conversation, so tinged with hope and pathos. The human genome has been decoded, cloning has begun, and newspapers print daily reports of predictions and speculations about the body's transformation through science. One day I read an article about the potential to harness the gene for aging and slow the inevitable process of dying. My partner and I, half believers and half sceptics, tell my stepson that while it is too late for us, he's lucky to be young enough to have the chance to live a hundred and fifty years. His response suprises us. He tells us he doesn't want to live that long, for the world won't be worth living in. While we see the body as a discrete object purified by science, he envisions it as a hybrid object compromised by social forces.

In Bruno Latour's philosophical meditation on the history of science, *We Were Never Modern*, he argues that modernity as the foundation of contemporary Western science is based on two contradictory and distinct practices, namely, translation and purification:

The first set of practices, by "translation," creates mixtures between entirely new types of beings, hybrids of nature and culture. The second, by "purification," creates two entirely distinct ontological zones: that of human beings on the one hand; that of nonhumans on the other. Without the first, practices of purification would be fruitless or pointless. Without the second, the work of translation would be slowed down, limited or even ruled out.[3]

In order to keep these two indivisible practices distinct, we subscribe to what Latour calls the Constitution of Modernity, a system of knowledge that organizes a Great Divide between the representation of things and subjects, nature and culture. While hybrids - what Latour calls "quasi-objects" - proliferate, we patrol the boundaries of knowledge to enforce a separation between empirical reality and social constructions. Although non-humans and humans alike form networks that are at once "simultaneously real, like nature, narrated, like discourse, and collective, like society,"[4] we rigorously deny zones of contamination. Yet, argues Latour, the ways we conceptualize and negotiate the world are dependent upon the very networks we are busily negating. In our everyday lives, nature is both thing and being; science is both myth and reality; culture is both biology and belief. Yet in our system of knowledge we assign such confusions to the "primitive" realm of the pre-modern, non-Western mind.

By clinging to an epistemological purification that cordons off the laws of nature from the social fabric, Latour proposes that we respond to the profusion of hybrids in our lives by assuming one of several stances. Disillusioned by the failure of emancipatory politics in the social arena, we become antimodern, turning our backs on the present and seeking solace in an archaic past. Alternatively, disillusioned by science's domination over nature, we become postmodern, turning our backs on empirical objectivity and suspending belief in a future. For the most part, however, we remain resolutely modern, continuing "to believe in the promises of the sciences, or in those of emancipation, or both."[5] Yet, as Latour observes, this "faith in modernization no longer rings quite true in art, or economics, or politics, or science, or technology. In art galleries and concert halls, along with the facades of apartment buildings and inside international organizations, you can feel that the heart is gone."[6]

In relationship to this faltering will to be modern, with its troubled boundaries of knowledge, Latour argues for a symmetrical anthropology in which all societies, not just "primitive" ones, are understood as collectives that mobilize natures and cultures. He stresses the importance of granting historicity - as contingent, non-temporal and associative - to all actors in the networks, both human and non-human. Otherwise, we cannot recognize nor regulate the hybrids we produce. In contradistinction to the modern Constitution, with its categorical purity, he proposes a nonmodern Constitution in which we commit to "providing representation for quasi-objects."[7] Here "the work of mediation becomes the very centre of the double power, natural and social. The networks come out of hiding."[8] The result of such an epistemological shift, he argues, is to comprehend that

there is indeed a nature that we have not made, and a society we are free to change; there are indisputable facts, and free citizens, but once they are viewed in a nonmodern light they become the double consequence of a practice now visible in its continuity, instead of being, as for the moderns, the remote and opposing causes of an invisible practice that contradicts them.[9]

In Catherine Richards's practice as a new media artist, she functions as Latour's symmetrical anthropologist, "providing representation for quasi-objects" and locating in the process of her art-making a mediation between indisputable facts and free citizens, science and society. In her work, the classical elements of the scientific laboratory are present - observable phenomena, experimental proofs, vacuum-sealed tubes. But so are memories and subjectivities, embedded in the viewer's interaction with the "quasi-objects" she has fashioned by roaming across an historical horizon from Renaissance curiosity cabinets to rococo chambers to virtual reality environments. Linking this spatial historicity to non-human agents through a nineteenth-century scientific vocabulary, she entangles us as observers in a network where we can no longer cling to the edges of either empiricism or subjectivity, but must instead contemplate their indivisibility.

In Richards's material conjuring of hybrids, the site of the body as a "quasi-object" and the role of the observer in a network of natures and cultures are central. In her earliest works, *Spectral Bodies* (1991) and *The Virtual Body* (1993), she explores how a proprioceptive reaction (the sensation of a phantom limb) can be triggered through the viewer's interaction with computer

simulations.

Shroud/Chrysalis I (2000)
Photo by Tim Wickens

In *Curiosity Cabinet* (1995) and *Shroud/Chrysalis I* (2000), the viewer is enclosed in a copper cabinet or wrapped in copper cloth to shield his or her body from electromagnetic fields that saturate our environment. In *Charged Hearts* (1997) and *I was scared to death / I could have died of joy* (2000), exquisitely crafted blown-glass models of hearts and brains respond to the viewer's proximity and touch. All of these works are rich in associations and contingencies that position the viewer in recombinant systems of cognition; all deploy a circuitry that connects the body as an object of scientific inquiry to the cultural relativity of the observer.

Curiousity Cabinet at the End of the Millenium (1995)
Photo by Catherine Richards

Within the broad conceptual model of Richards's artistic practice, two pieces - *Charged Hearts* and *I was scared to death / I could have died of joy* - are also distinct in their use of anatomy to lay bare the projections and perceptions of our bodies as simultaneously scientific phenomena and social narratives.

For *I was scared to death / I could have died of joy*, Richards creates a sepulchral atmosphere in which glass models of halves of a brain and spinal cord, sealed in vacuum tubes, lie in wait for the viewer. In the darkened gallery space, the models are placed at each end of the room on surgical steel tables, illuminated by tiny spotlights that bathe the brains in a halo-like glow. As the viewer approaches, the light goes out and a shimmering luminescence flickers along the spinal cord and the brain, giving the impression that the two halves are communicating. By reaching out to touch the glass tube that is suddenly and eerily animated by phosphorous gases, the viewer appears to excite the organ as plasma flows towards the hand. According to Richards, the pulsating patterns of electrons in the glass tubes are based on scientific research into the brain's electromagnetic impulses. However, the viewer does not interact with the work in a literal way; that is, the patterns generated by the model brain are not direct simulations of the individual's brain activity. Rather, it is the cultural narratives and emotional reactions of the viewer that connect him or her to the composite halves of the model brain.

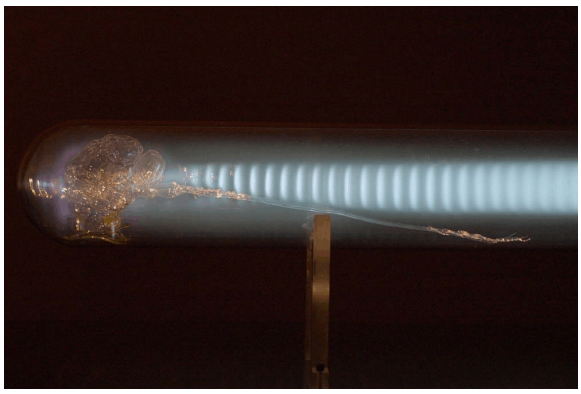
I was scared to death/ I could have died of joy (2000)Photo by Mitch Lenet

My first viewing experience of this work was empirical and relational. There were a number of people in the gallery, and as we circled the brains we began to exchange questions. What happens, we asked each other, when we stand near the tables, or far away? What is the relationship of our touch to the plasma flowing through the tube? Is it our body heat that triggers the brain's iridescent patterns, or is it the electricity flowing through our bodies? Is there a way to predict and manipulate the brain's reactions to our presence, or is there something mysterious and random about the behaviour of these glassed-in, glass-blown body organs?

Like Serres's final observer, we were receivers in a network of information and noise, sorting out meaning through language. We were also, in our collective guise, observers as objects for each other, subjects observed in relationship to non-human agents, those delicate anatomical replicas of the brain charged with electromagnetic energy. Through our interactions, the body as "simultaneously real, like nature, narrated, like discourse, and collective, like society" became visible as a "quasi-object" of a hybrid epistemology.

The second time I saw the work, I was alone after closing time; an attendant opened the gallery for me and left me in the darkened hush of the room. As I approached either of the brains, their phosphorous gases silently flickering like nerve impulses, I had a strange sensation of intimacy. It was as if the brains, scientific models responding to quantifiable stimuli, had become beings in their own right - not part of me, not like me, but nevertheless imbued with emotional vulnerability. As I stroked one half of the brain, watching the plasma surge, it was as if I had invoked a magical incantation and the brain had come alive, an animate mesh woven from the technological precision of the work itself and my memories of my grandfather's experiments. It was only months later that I understood how another memory had woven its way into my caress. Thinking back to my impression of connectivity in the gallery, that sensation of empathy but also of something more intangible, I realized that in stroking the brain I had relived a moment of absolute difference and sameness - an impossible hybrid of emotions - that I had first experienced after my father's death. The day before my father's burial, he was placed in waiting in an open coffin at the funeral parlour. During the visitation hours I found myself alone with his immaculately embalmed corpse, and reached over to stroke his head. In that gesture, I momentarily experienced, just as I would with Richards's brains so many years later, an object that was deathly other and yet so deathly familiar.

In Jonathan Sawday's book on the history of dissection, *The Emblazoned Body*, he traces a genealogy of anatomy back to the early modern world of the Renaissance, when cadavers were plucked from the gallows by surgeon/barbers and ferreted to the public arena of the dissection theatre. Through this display of the body's interior - no longer the inaccessible container of the soul but a discrete entity to be observed and analyzed - the foundations of modern medicine were laid. In parallel fashion, the social division between pathology and normalcy was established: sinners were no longer returned to the fold of the body politic after death but dragged off to the dissection table. Echoing Bruno Latour's argument that modernity is based on a division between things and subjects, Sawday locates in the dissection theatre a separation between the mind as Cartesian consciousness and the body as an observable phenomenon of the natural world.[10]



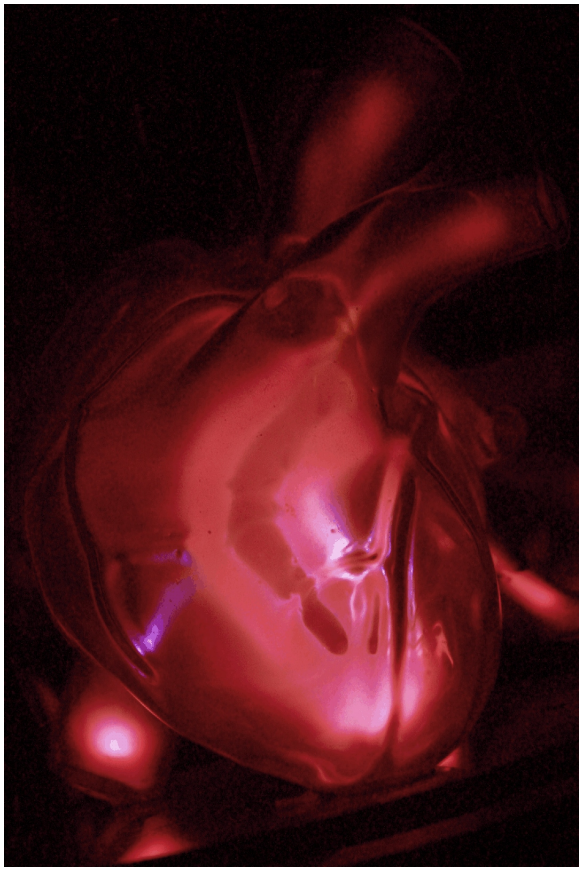
I was scared to death/ I could have died of joy (2000)

Photo by Mitch Lenet

Whereas formerly the body had provided the metaphors for political organisms and our relation to it was one of mystical affinity rather than anatomical partition, henceforth the interior of the body was understood as a vast continent - like the New World - to be mapped by intrepid explorers, and a corporeal mechanism whose malfunctions could be corrected by the tinkerers of science.[11] Paradoxically, this narration of the body as a mechanism to be dissected and studied produced an inverse effect on the cognition of the self. While we could learn about other bodies through quantifiable and empirical methods, we could only know ourselves through divination or introspection. The objectivity/subjectivity split that would propel the rise of science, and harness nature to empiricism, found its parallel in the binary division between self and other, mind and body. From the seventeenth-century reordering of spirituality to account for God as a watchmaker and the body as his perfect automaton to the nineteenth-century reordering of materiality to account for an ungodly evolution and the body as an engine that converted energy into labour, science would claim an empirical domain untainted by cultural relativism, despite the obvious narration of the body as a social construct.

In a medieval world of martyrs and religious miracles, the body was a profoundly hybrid object. As in the realm of "primitive" belief, the boundaries between materiality and immateriality, what was visible and what was invisible, were leaky and indeterminate. Hearts continued to beat after death, suggesting heavenly

visions and hellish retribution; souls nestled in the brain, producing visceral stigmata. The modern era swept away this unnerving circuitry of natures and cultures, banishing the mediating power of the priest or shaman to "see" inside the body and interpret its external signs as the visible manifestations of a mesh of natural and social relations. In a contemporary context, as our bodies become increasingly entangled with technology, the boundaries between materiality and immateriality, what is visible and what is invisible, are as leaky and indeterminate as they were five hundred years ago. The convergence of biological and artificial life, of genetic manipulation and ubiquitous computing, have produced a system of networks in which the modern concept of the Great Divide becomes as absurd as the medieval belief in miracles. Yet mastery over nature rather than an intimate connectivity continues to drive our social relations.



Charged Hearts(1997)

Photo by Mitch Lenet

As an artist who has chosen to cross the Great Divide between scientific objectivity and artistic subjectivity, Richards foregrounds an intimate connectivity in her visualization of the leaky boundaries between body and technology. In *Charged Hearts*, an earlier companion piece to *I was scared to death / I could have died of joy*, the intimacy and vulnerability of our relationship with technology converge in the central image of the heart. Chosen by Richards for its emotional symbolism and its physical function as "one of the body's better known electromagentic fields,"[12] the heart becomes the interface between the viewer and natural phenomena. In her installation, Richards places two vacuum-sealed glass replicas of the human heart in bell jars on pedestals. A terrella - a scientific model of the electromagnetic field of the Northern Lights that envelops the earth - is placed between them on a third pedestal. The hearts and the terrella are activated when a viewer steps up to one of the pedestals and lifts up the glass model of the heart inside the bell jar. As the viewer holds the heart in his or her hands, phosphorescent gases illuminate its interior, appearing to pulsate in time with the viewer's own heartbeat. When two viewers lift the hearts simultaneously at either end, it seems as if a mysterious connection has been made between the artificial hearts and the viewers' pulses, while between the two beating hearts the terrella begins to glow with a magical incandescence.

In relation to this work, Richards speaks of the linguistic slippage embedded in the act of holding a heart in our hand. The glass models are fragile replicas that, if dropped, would shatter, with shards scattering in all directions like the emotional volatility of someone scorned in love. She also speaks of the physical slippage between the glassed-in models and the electromagnetic fields that envelop us. "The real object in this piece," writes Richards, "is electromagnetic activity and its play between the material and the virtual. The hearts and the terrella are containers for these electrons. They are windows which frame the activity."[13] As an interface for the viewer's interaction with the work, the heart becomes a "quasi-object," a visual cipher of a field of electromagnetic signals that connects the electrons of our bodies to those of televisions, computers, voltage lines; and connects the cognition of these invisible fields of energy to cultural narratives of intimacy. In Richards's work, we literally wear our heart on our sleeve; we hold a representation of our emotions in our hand. In so doing, we also immerse our bodies inside a scientific modelling of natural phenomena in which we become Serres's island in an ocean of electronic noise. Through the transposition of the interiority and exteriority of the body, Richards makes manifest a mesh of natural and social relations.

In the fields of psychoanalysis and psychology that lay claim to the interiority of consciousness, dissociation is

a term given to the individual's capacity to cordon off a traumatic experience by separating or disconnecting component parts of his or her personality. The result limits a capacity to achieve self-knowledge and an intimacy in social relationships. Extending this concept, by way of analogy, from the troubled boundaries of the individual mind to the troubled boundaries of our collective environment, the dissociation underlying modernity's Great Divide prevents us from forging connections with the "quasi-objects" that shape our social fabric; it prohibits intimacy between the cultural and scientific dimensions of our knowledge systems. For Latour, the recognition that we have always lived in a world where associations of observation and imagination mediate our existence is of paramount importance to an understanding of contemporary science. Similarly, Sawday argues that the mystical affinity of the body and consciousness remains with us, repressed, unacknowledged, yet deeply operative in our social relations. For Richards, the importance of these insights is coupled to an artistic practice that enables the viewer to "see" these associations and affinities through an experiential relationship to her artworks. By blurring the boundaries between representations and extensions of the body and revealing the repressed intimacy between human and non-human agents, she provides a conceptual model that allows us to "feel the heart" of networks that modernity extinguished.

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Endnotes

1. Philipe Ariès. *The Hour of our Death*. Trans. Helen Weaver (New York: Alfred A. Knopf, 1981), 369.
2. Michel Serres. " The Origin of Language" in Hermes: *Literature, Science, Philosophy* (Baltimore & London: John Hopkins University Press, 1982), 82.
3. Bruno Latour. *We Have Never Been Modern*, Trans. Catherine Porter (Cambridge, Massachusetts: Harvard University Press, 1993), 10.
4. Ibid., 6.
5. Ibid., 9.
6. Ibid., 9.
7. Ibid., 139.
8. Ibid., 139.
9. Ibid., 140.
10. Jonathon Sawday. *The Emblazoned Body: Dissection and the Human Body in Renaissance Culture* (New York & London: Routledge, 1995), 27.
11. Ibid., 25.
12. Artist's notes for *Charged Hearts*, 1.
13. Ibid., 2.